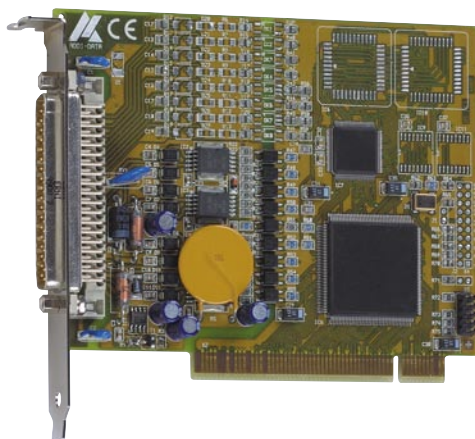


# Digital output board, optically isolated, 16 digital outputs, 24 V



## APCI-2016

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

Output filters, short-circuit protection

Watchdog

After power-on the outputs are reset to "0"



RoHS  
compliant



LabVIEW™



LabWindows/CVI™

### Features

- PCI Interface to the 32-bit data bus
- 16 isolated digital outputs, 10 to 36 V
- Output current per channel 500 mA
- Watchdog for resetting the outputs to "0"
- One ground line for all outputs
- After power-on the outputs are reset to "0"

### Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Protection against fast transients (burst) overvoltage, electrostatic discharge and high-frequency EMI
- Short-circuit current for 16 outputs ~ 3 A typ.
- Short-circuit current per output ~ 1.5 A typ.
- Self-resetting fuse (electronic fuse)
- Overtemperature and overvoltage protection
- 24 V power outputs with protection diodes and filters
- Output capacitors against electromagnetic emissions
- External 24 V voltage supply screened through protection circuitry
- Shut-down logic when the external supply voltage drops below 5 V
- Diagnostic function for the detection of short-circuits or overtemperature

### EMC tested acc. to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

### Applications

- Control of industrial PC-based process
- Signal switching
- Interface to electromechanical relays
- Automatic test equipment
- ON/OFF monitoring of motors, lights ...
- Watchdog timer
- Machine interfacing, ...

### Software drivers

A CD-ROM with the following software and programming examples is supplied with the board.

#### Standard drivers for:

Linux kernel version 2.4.2, Windows XP/2000/NT/98.

Real-time driver for Windows XP/2000/NT/98.

The board is supplied with the universal software

#### ADDIPACK.

#### Drivers for the following application software:

LabVIEW 5.01

LabWindows/CVI

#### Samples for the following compilers:

Microsoft VC++ 5.0 • Borland C++ 5.01

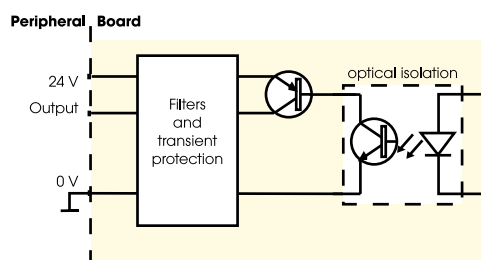
Visual Basic 5.0 • Delphi 4.0

#### ADDIPACK functions supported:

Digital output • Watchdog

Current driver list on the web: [www.addi-data.com](http://www.addi-data.com)

### Protection circuitry for the output channels



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### Specifications

#### Digital outputs

Number of outputs:	16
Optical isolation:	through opto-couplers, 1000 V from the PC to the peripheral
Output type:	High-side (load at ground) acc. to IEC 1131-2
Nominal voltage:	24 V
Supply voltage:	10 to 36 V, min. 5 V (through front connector)
Max. current for 16 outputs:	3 A typ.
Output current/output:	500 mA typ.
Short-circuit current/output	
Shut-down at 24 V, $R_{load} < 0,1\Omega$ :	1.5 A
RDS ON resistance:	0.4 $\Omega$ max.
Switch-on time:	$I_{out}=0.5 A$ , load = resistance: 100 $\mu s$
Switch-off time:	$I_{out}=0.5 A$ , load = resistance: 60 $\mu s$
Overtemperature (shut-down):	170 °C (output driver)
Temperature hysteresis:	20 °C (output driver)

#### Safety

Shut-down logic:	When the ext. 24 V voltage drops below 5 V: the outputs are switched off.
Watchdog:	8-bit, programmable, from 20 ms to 5 s in steps of 20 ms

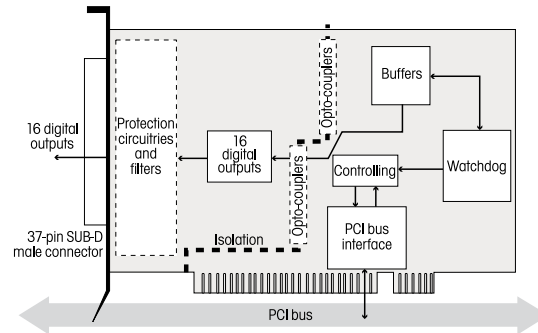
#### Noise immunity

Test level:	- ESD: 4 kV - Fields: 10 V/m - Burst: 4 kV - Conducted radio interferences: 10 V
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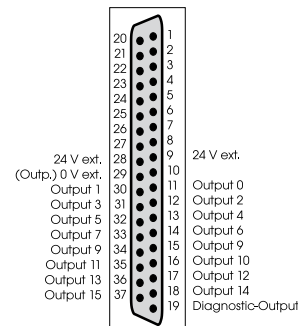
#### Physical and environmental conditions

Dimensions:	131 x 99 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG)
Space required:	short board, 1 PCI slot
Operating voltage:	+5 V, $\pm 5\%$ from PC
Current consumption:	220 mA $\pm 10\%$ typ.
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)

### Simplified block diagram



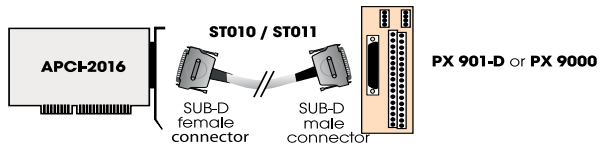
### Pin assignment – 37-pin SUB-D male connector



### ADDI-DATA connection

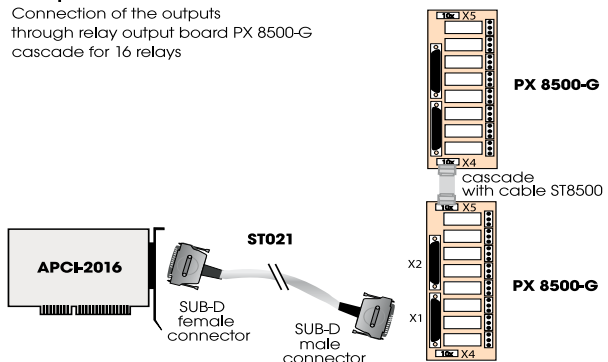
#### Example 1

Connection of the outputs through screw terminal boards



#### Example 2

Connection of the outputs through relay output board PX 8500-G cascade for 16 relays



## ORDERING INFORMATION

### APCI-2016

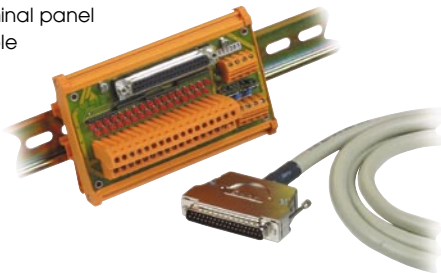
Digital output board, optically isolated, 16 digital outputs, 24 V. Incl. technical description and software driver

#### Connection

- PX 901-D:** Screw terminal panel, LED status display
- PX 901-DG:** Screw terminal panel, LED status display, for DIN rail
- PX 9000:** 3-row screw terminal panel for DIN rail, LED status display

- PX 8500-G:** Relay output board for DIN rail, cascadable
- ST010:** Standard round cable, shielded, twisted pairs, 2 m
- ST011:** Standard round cable, shielded, twisted pairs, 5 m
- ST010-S:** Same as ST010, for high currents (separate 24 V supply)
- ST021:** Standard round cable, shielded, twisted pairs, 2 m
- ST8500:** Ribbon cable for cascading two PX 8500-G

PX 901-DG terminal panel with ST010 cable



PX 8500-G relay output board

